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EFFECTIVE METHODS OF STUDY FOR
SERVICE SCHOOL STUDENTS

CHARLES H. GREENE, JR.

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EFFECTIVE METHODS OF STUDY
FOR
LATE HIGH SCHOOL STUDENTS

A THESIS
SUBMITTED TO THE
BOARD OF EDUCATION AND
THE COMMITTEE ON GRADUATE STUDY
OF
LAWSON STATE COLLEGE UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARTS

By
Charles E. Greene, Jr.

August, 1949

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CHAPTER I

INTRODUCTION

The Problem

The main purpose of this study was to provide service students with the necessary tools for improving study habits. This involved four principles of good management of learning: 1. how to learn; 2. what to learn; 3. when to learn; and 4. who can learn.

Need for the Study

An examination of service files indicated a lack of up-to-date information relative to this topic. In view of the constant increase in training of men in service -- the majority of whom had been away from school work for some time -- it was apparent a definite guide for study methods and habits should be made available for service school personnel.

Delimitations

This study was limited to the methods accepted by leading educators in the field, and does not go into the psychology of learning per se. The fundamental purpose of this report was to provide the student with practical study aids. For the officer or enlisted man, this volume presents a brief summary of suggestions applicable to his immediate needs.

In military schools, insufficient emphasis has been placed on the mastery of the best methods of study. It was the intent in this thesis to promote practice and instill confidence in the techniques of studying. It cannot supply the intelligence, nor can it furnish the initiative and perseverance which must accompany any efficient, scholarly work.

Definitions

"Student" as used in this work refers to officers and enlisted men in service schools, or those individuals pursuing private study.

"School" as used herein means any military service school where there is a collective body of teachers and learners, i.e. instructions or exercises carried out in accordance with military regulations, or orders.

"Study habits" as referred to means any methods used to acquire knowledge, and includes either good or bad habits of study which will be retained or discarded by the student.

Historical Review

A recent article written on this subject by Wrenn and Larsen was published in 1941¹. This manual gives the answers to two major questions which confront the student: 1. the student's weaknesses in study habits; and 2. how he can improve his study methods.

Jones² published his first booklet in relation to this subject in 1934. However, he has a completely revised sixth edition which was published in 1945. This publication was designed primarily for beginning college students and has been used by university deans and other college advisers to guide students in their difficulties in relation to study habits.

1. Gilbert G. Wrenn and Robert I. Larsen, Studying Effectively, California: Stanford University Press, 1941.

2. W. J. Jones, Improvement of Study Habits, Buffalo, New York: Foster and Stewart Publishing Corporation, 1945.

The above writings were designed primarily to give the high school graduate the background and procedures necessary to develop efficiency in studying at the onset of his college training. These booklets filled a real need in setting forth direct suggestions to help students improve their study habits. Thusly, it is the intent of this writing to give the service student similar advantages in the realm of learning.

CHAPTER II

STUDY HABITS

Who is a Good Student?

An effective learning program could be likened to a military operation, in that to a large extent it is a matter of tactics. Compare the relative success of two generals who have a like number of men and material. One might gain the objective with minimum losses, and the other might fail due to the fact that the first was a good tactician and the second was not. The student's position in planning his study program is similar to that of a general planning an operation. The difference between a good or a poor student is not so much the matter of inherent abilities, but rather the ability to learn through management of study habits. Equal progress toward the objective can be attained only when two individuals of equal ability, educational opportunity, and health, have equally good tactical planning.

The inefficient student is careless and has ineffective methods of studying. Emerson¹ says: "To be strenuous is to put forth greater effort; to be efficient is to put forth less effort . . . Efficiency brings about greater results with lessened effort; strenuousness brings about greater results with abnormally greater effort."

Smith and Littlefield² have indicated that most students can save approximately one-third of their time by the use of good management of their efforts in accordance with the chief principles of learning.

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1. Harrington Emerson, The Twelve Principles of Efficiency, The Law-Hill Book Company.
 2. Samuel Smith and Arthur W. Littlefield, Best Methods of Study, New York: Barnes and Noble, Inc., 1935.

In other words, good study habits can be acquired by any individual applying the correct standards of learning.

Study Habit Analysis

To be able to improve his study habits, the student must first analyze his present study methods and then eliminate the inefficient habits. Read the following questions and answer each one "yes" or "no", answering all items honestly. The student is asked to answer with regard to the items as listed, not in accordance with his personal thoughts as to what he should or should not do, or what he sees others do. Rather, he is to indicate what he is in the habit of doing or not doing.

Number lines on a sheet of paper from one to thirty and proceed with the following inventory of personal study habits extracted from Wrenn and Larsen¹.

1. Do you have to re-read material several times, e.g. the words don't have much meaning the first time you go over them?
2. Do you have trouble picking out the important points in material read or studied?
3. Do you go back and recite to yourself the material studied?
4. Do you miss points in the lecture while copying down notes on something which has gone before?
5. Do you look at each word separately as you read?
6. Do you find it hard to keep your mind on what you are studying?
7. Do you have a tendency to "day-dream" when you should be studying?

1. Wrenn and Larsen, op. cit. p. 1.

8. Does it take you some time to get settled to the task of studying?
9. Do you have to wait for a mood to strike you before attempting to study?
10. Are your study periods often too short to get "warmed up" and concentrated?
11. Is your time wisely distributed; do you spend too much time on some things, and not enough on others?
12. Are your periods of study interrupted by outside interference such as telephone calls, visitors, and distracting noises?
13. Do you find it hard to force yourself to finish work by a certain time under pressure; work is unfinished, inferior, or not in on time?
14. Would you rather study with others than by yourself?
15. Does enjoyment of loafing, "bull-sessions", or "blowing the fat" interfere with your study?
16. Do you spend too much time reading fiction, going to shows, etc., for the ultimate benefit of school work?
17. Does too much social life interfere with your scholarly success; dances, dates, and trips?
18. Do you get "fused" and nervous on exams — "blow up" and find yourself unable to do justice to the problem at hand?
19. Do you outline in your mind the answer to a subjective or essay type examination question before starting to write the answer?
20. Do you finish your examination papers and turn them in before time is called on the examination?
21. When taking an examination do you try to get each point as you go over it, rather than to go on at the time and then go back later to clear up doubtful points?

22. Do you try to carry over and relate material learned previously to your present studies?
23. Do you try to summarize, classify, and systematize the facts learned, associating them with previously learned material and facts?
24. Are you conscious of having been out of school too long, or of having taken your basic subjects too long ago?
25. Do you try to do some "over-learning" by working beyond the point of immediate memory or recall?
26. Do you find yourself too tired, sleepy, and listless to study effectively?
27. Do you usually have to make while you study?
28. Does dislike of certain courses or instructors interfere with your school success.
29. Do you study late into the night or all night before an important examination?
30. Do you study or read by direct (concentrated) light?

The answers which distinguish a good student as compared to the poor one will be found at the end of this chapter. Each variation with the key indicates a bad habit or attitude to be corrected. Make a record of the bad habits and post them in a place where ready reference can be made. Review this list often with the view in mind of correcting as many bad habits as soon as possible. The student should use every opportunity to put into use those correct habits which he lacks. This procedure will become easier with practice. However, the student must keep in mind the correction of any bad habit is the most difficult at the start.

The good student answers the foregoing questions as follows:

(1) No; (2) No; (3) Yes; (4) No; (5) No; (6) No; (7) No;
(8) No; (9) No; (10) No; (11) No; (12) No; (13) No; (14) No;
(15) No; (16) No; (17) No; (18) No; (19) Yes; (20) No;
(21) Yes; (22) Yes; (23) Yes; (24) No; (25) Yes; (26) No;
(27) No; (28) No; (29) No; (30) No.

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Reading

The ability to read is a prerequisite for any student, but according to Smith and Littlefield¹ the outstanding students are those who have the ability to read fast and are able to comprehend the material read. Reading ability is something which can be acquired through hard work and the elimination of inefficient habits.² Students vary greatly in their native ability for reading, but they probably differ even more in the extent to which they have developed their potential talents for rapid and effective reading. It is stated by Wrenn and Cole³ that 85 to 95 per cent of a student's time is spent in reading. In view of this, it is apparent that the student should spare no pains to improve his reading habits to the highest possible degree. The student should be able to learn a great deal of permanent value by carefully studying and observing the following rules of reading:

3 of Eyesight: This is the primary factor to effective reading. If the student suffers from watering or burning eyes, headaches, or a feeling of tension around the eyes following a period of reading, an eye specialist should be called upon for a complete eye examination. This should not be delayed as early correction may eliminate serious consequences from eye strain. It is sometimes wise to have the eyes checked

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1. Smith and Littlefield, op. cit., p. 4.
 2. L. B. Lauer, "An Experimental Study of the Improvement in Reading by College Students". Journal of Educational Psychology, pp. 655-662, Vol. 27, 1936.
 3. Gilbert C. Wrenn and Lucille Cole, How to Read Rapidly and Well, p. 2, California: Stanford University Press, 1935.

even though the above symptoms are not present, as this would alleviate any false belief regarding the possibility of weak eyes.

Lighting: Many experiments have been made with reference to types of lights which are best for eyes in reading and it is found that diffused or indirect light is better than the harsh glare of an unshaded globe. Ferree and Band¹ measured the effects of continuous reading for a period of three hours under three types of illumination. It was found that clear vision cannot be maintained for more than a few seconds when the eyes are tired. Ferree and Band support the contention that indirect lighting is superior to either direct or semi-direct lighting.

A further study by Tinker has shown that the intensity of the illumination in the visual field is not so important as uniformity². In other words, a bright field that is uniform is much better than a dark field with a few bright lights. There is less eye strain in a field of uniform light, and the student should make certain he has an adequate amount of illumination, which can be determined by the absence of glare spots in the field of vision.

The color of the light is just as important as the intensity; therefore, the student should be careful to select the proper light. Natural daylight of uniform intensity is best, and such lights as green or blue should be avoided.

1. C.E. Ferree and B. Band, "Lighting and its Relation to the Eye". American Journal of Optometry, pp. 101-103, Vol. 12, 1935.

2. R. Tinker, "Cautions Concerning Illumination Intensities Used for Reading". American Journal of Optometry, pp. 43-51, Vol. 12, 1935.

Eye Movements: The would-be athlete may have developed poor habits of bodily coordination and before he is able to become proficient, these bad habits must be corrected. This same thing holds true for the eye movements, which are controlled by muscles just as are other parts of the body. Basically, reading is much more than just a physical skill. A student having poor eye movement indicates a poor reader, and possibly this is the major factor related to poor reading ability. Moore has indicated that one of the major causes for reading inadequacy is, "... slow, short, and regressive eye-movements."¹ It is difficult for a reader to observe his own eye movements, but it is relatively simple to observe those of another. Watch the eyes of another student while he is reading and note that the eyes make several pauses as they move along the line. The average reader will make but a few of the above mentioned pauses or stops, and will spend much more time in fixating on phrases than on movements from word to word. This fixation is normal, since nothing is seen when the eyes are in the process of moving. The poor reader loses such valuable reading time in these unnecessary movements. In addition, the poor reader finds it necessary to go back over the line to pick up the general thought trend. This is due to reading words instead of phrases, consequently the general idea or thought is completely lost. The difference between the eye movements of the good and the poor readers can be compared to the difference between the eye movements of an adult as compared to those of a child.

1. H. Moore, "Diagnosing and Caring for the Reading Difficulties of College Freshmen", Psychological Abstracts, p. 252, Vol. 1, No. 6, June, 1956.

The number of words which can be read at any one time, when the reader glances at the page, is usually much greater than those words which are actually taken in, i.e. comprehended. This fact suggested to Gray that it was possible to decrease the number of fixations per line without loss of the general meaning intended.¹ In one of his experiments it was found possible for an individual to reduce the number of pauses per line from approximately 15 to 6 as the result of some twenty minutes of practice per day for a period of twenty days. This points out that the reader can increase his reading speed by forcing himself to take in more words with each fixation and consequently have less pauses per line. By cultivating this practice, the benefit will be twofold; first, the fast readers get more meaning from material read, and second, this is a time saving device.

Efficiency in Reading: When the student is reading he should have in mind something definite to look for, that is: the answer to some question or questions, the solution to some problem, or the seeking of some specific information. The reason a poor reader seldom gets the point is due to his not knowing what to look for or how to go about finding it.

The New York Times² reported that according to Professor Fessenden of Columbia University, "Students do not read in the real sense . . . they vaguely get the feel of what the author is writing, but for the most part the printed page is a blur for them."

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1. W. L. Gray, "Summary of Investigations Relating to Reading," Supplementary Education Monographs, No. 22, 1925.
 2. The New York Times, May 17, 1936.

The student must realize that something constructive must be done with what he is reading in order to learn it. This can be accomplished in various ways, e.g., outline the work, find its topical points, pictures, associations, or uses, etc. The following outline from ¹Wrenn may aid the student in finding the main points in a reading assignment:

1. Making a brief outline in your own words.
2. Underlining the most important sentences.
3. Reading first the summary (if there is one) of a chapter or article, then looking for the points emphasized in the summary.
4. Paying particular attention to the paragraph headings.
5. Glancing rapidly through a chapter and noting the paragraph headings before beginning to read.
6. Reciting to yourself while you are studying. After reading a paragraph or page, close your eye or the book and ask yourself what you have learned. Don't attempt to memorize the author's phrases, but state in your own words his main points. If you cannot do this, you must read the section again, looking for something definite. Experiments have shown that this self-recitation method of study is one of the most effective that the students can employ.
7. Trying to think out in advance what the author is going to say. Keep your curiosity alive by asking yourself whether or not the author is developing his idea as you would expect him to develop it.
8. Making sure that you gradually master the fundamental vocabulary of the course. Don't skip technical terms. No one can read efficiently in any field without knowing the vocabulary of that field. Use a dictionary often.
9. Paying particular attention to the charts, maps, tables, and graphs in your reading, especially in reading your textbook.²

The student should remember the first step in reading is getting the thought. Have in mind something definite for which to look. He should decide what is important in accomplishing the writer's purpose and developing his controlling idea. Outline the main points in difficult reading. Summarize each paragraph mentally in his own words as soon as he has read it. Learn the meaning of technical or unfamiliar

1. Wrenn, op. cit., p. 4.

tense and make certain that any charts, tables, or graphs are fully understood. It follows that a student should be a critical reader and not accept statements made by the author without convincing himself that they are valid. This should not be construed to mean that there is some doubt as to the validity of a given text, but rather to cause the student to question the "why" of certain things being true. Just because a book is written and certain statements appear on a printed page is no reason to require its acceptance by the reader or student. Keep an open mind and realize the "pros" and "cons" relative to any stated situation of facts.

A measure of reading efficiency is dependent upon the student's ability to: 1. distinguish major from minor points; 2. present the major points logically; 3. tell why or how, as well as what; and 4. say it all in a few words.

Using the Dictionary:

A good student will have a good dictionary available during the study period. When a new word is encountered, the student should look it up. If engaged in the first reading of the assignment, underline or make a note of the word, and go back to it before starting the intensive second reading of the material. If reading for general interest, it is advisable to wait until completion of the chapter or article before pausing to look up the word. After referring to the dictionary, it is recommended that the student re-read the paragraph where the word was located in order to better understand the author's idea. Ferrin¹ suggests that dictionaries answer questions about the meaning of words so that the student can read with more understanding.

1. Foster G. Ferrin, Writer's Guide and Index to English, p. 194, Chicago: Scott, Foresman and Co., 1948.

When consulting a dictionary, the student should refer to a recent, good-sized, unabridged edition of a standard English dictionary. When buying such a reference book, he should buy the largest, most recent and most complete edition that he can afford.

How to Take Notes:

An effective means of study is the taking of lecture notes. To take good notes the student must pay attention to what is being said in the lecture. This can be accomplished by keeping an alert mind and physical control of the body. The student cannot listen effectively while he is in a slumped position in his seat. Try "sitting at attention" if there is difficulty in this respect. The ability to recognize and select the salient points will aid the note-taking process. In this respect, Smith and Littlefield¹ recommend observance of the speaker's emphasis on an idea, as disclosed by his tone of voice, deliberate pauses, and repetition of a point. Then the general idea may be noted for further reference, but remember to restate the idea in your own words which will insure better assimilation of the material. Another aid in understanding the instructor, and to assist in note-taking is to read about the topic prior to the lecture. One difficulty in taking notes is inability to understand what the lecturer is talking about.

Notes should be reviewed often to keep the ideas fresh in the mind. A good time to review is just prior to each class, as this will assist the student in connecting the previous lecture with what will be said in the following class period. The review should come often enough to

1. Smith and Littlefield, op. cit., p. 21.

enable the student to know just what the lecturer's opinion is in relation to the main objective of the course.

The student does not need voluminous notes to have a clear idea of the subject. If he tries to write notes throughout the lecture period, he is likely to miss the thought of the discussion. If this happens to be the case, the student may find that note-taking is a hindrance to learning rather than a help. Wrenn and Larson¹ contend that the student will fall behind and be unable to follow the thought of the lecturer if he attempts to copy each word or phrase as quoted. In other words, notes should be brief and to the point. The only time it becomes necessary to copy the exact words of the lecturer is when direct quotations, reference books, definitions, and specific facts (such as dates) are made. Brief notes are easier to take and understanding is facilitated. Stamp² says, "Most learning takes place by note-taking or note-making, from lectures as heard and from books as they are read." Good lecture notes are logically organized within themselves, and definitely are an aid to efficient learning.

There is no one correct outline for a given set of facts. The outline is for the student to use now and in the future. Its form will be determined by the individual's needs and interests. The most common type of formal outline is the topical outline, as suggested by Ferrin.³

The subjects are noted briefly in the form of phrases or a single word, and are numbered consistently as in Ferrin's example which follows:

1. Wrenn and Larson, op. cit., p. 22.

2. Sir Josiah Stamp, to live and learn, pp. 85-86. London: (England) Macmillan and Company, 1936.

3. Ferrin, op. cit., p. 632.

"I Have Learned to Work (Title)

- I. The work habit formed early (Main Head)
 - A. The evils of idling taught by my parents (Subhead)
 - B. Chores required regularly of all children in my family
 - C. A newspaper route for fun and profit
- II. Working in summer vacations during my high school years
 - A. Necessity of earning money
 1. For various school activities
 2. To save for my future college expenses
 - B. Ways and means
 1. Selling popcorn and candy at baseball games
 2. Selling magazine subscriptions
 3. Acting as lifeguard at seashore resort
- III. Beneficial results of this work
 - A. Practical results
 1. Many additional clothes and social activities
 2. A bank account for my college expenses
 3. Skill required and contacts made valuable for getting jobs during college vacations
 - B. More permanent results
 1. Strengthening of character -- avoiding mischief -- habit of industry
 2. Realization of value of money
 3. Carry-over into academic life of work habits
 4. Above all, self-reliance developed."

Spacing of Learning Efforts:

The best way to space learning will depend upon the subject and the nature of the material. When the subject is one which is interesting and full of opportunity to gain new relationships, the student can afford to spend two hours at one study period. If the subject requires rote learning (e.g. memorizing, without attention to meaning) of names, as in first-year foreign language courses, the study period should be broken up into shorter sessions. The best plan is to adjust the study method to the basic content of the course and not to the course itself.

The factors important to a particular schedule of distribution of study efforts are very complex. Some of the more important factors to consider in space learning will be discussed briefly.

Warm-Up Period:

Just as an athlete must prepare for the contest, the student must

also prepare. The student does not start right in to work the moment he sits down at the study desk. In the first place, the materials necessary for the process must be brought out -- the book opened and placed in a good position, the pen filled, or the pencil sharpened. It will be clear that ordinarily an individual's thoughts have not previously been occupied with thought of study; therefore, he must collect his thoughts and start concentrating on the course of study. This is not easily done. Since unrelated activity may continue to run through the mind, a period of inefficiency will be apparent. Naturally, all this takes time, but once the adjustment is accomplished, it need not be repeated during the study period. At this point, it should be clear that the shorter the study period, the greater the proportion of total time lost in getting started.

Forgetting:

Munn¹ says, "Any activity which produces a poor impression obviously yields poor retention." It then follows that learning precedes forgetting; therefore, forgetting naturally follows learning to a degree, depending on various factors. For example, if the practice periods are too far apart, even though they are of ideal length, the total schedule of learning will not be efficient. Munn² continues, "Time may be an important factor in forgetting, merely because of the activities of the student which occur in time." In other words, the occupation of the mind with other thoughts or activities will cause an increase in forgetting.

1. Norman L. Munn, The Fundamentals of Human Adjustment, p. 156. Cambridge, Mass.: The Riverside Press, 1946.

2. Ibid., p. 162.

Boredom and Fatigue:

It is a well known fact that the most interesting activity becomes boring if indulged in for too long a period at one time. For example, Canasta (Basket Party) may be interesting, but the individual is rare who would want to play it all day long, seven days a week. To keep the interest fresh, the student will find it advisable to introduce a certain degree of variety by changing from one subject to another. Furthermore, the body muscles become tired from prolonged sitting at the desk. These factors make it necessary for the student to know his own limits and not exceed this fatigue period.

Principles of Memory:

The task of the student does not end with the learning of subject matter to the point of perfect repetition in an examination, but only when the subject matter becomes so much a part of him that he uses it effortlessly in solving problems which come up in daily living. At this point, he can say he has "learned." Prior to this time, he has merely studied. Mann¹ gives us nine principles of learning which are presented from an eclectic standpoint as follows:

- (1) Have the intent to learn;
- (2) If you have the intent to learn, you will probably pay close attention to what is before you;
- (3) Use imagery to the fullest possible extent, e.g., try to get a photographic impression. . .;
- (4) Tie up what you are learning with other things;
- (5) Rhythm is an aid to retention;
- (6) Distribute your learning as much as possible, e.g., if you can avoid it, do not cram;
- (7) Wherever possible, rehearse or recite;
- (8) Rest, or better still, sleep after you have studied; and
- (9) When a long chapter is to be studied, look it over as a whole, before beginning intensive study of the parts."

1. Ibid., pp. 164-168.

From a practical standpoint, the student should work to understand and get the full meaning out of everything he wishes to learn. To do this, it may become necessary to bring in past experiences in order to fully understand that which is presented. This method will make for more permanent retention of the material already learned. The importance of this is emphasized when the student considers that if an idea is completely understood, it will be retained for an indefinite period. This does not mean that the speed of learning will be greater, but rather, that retention will be more fixed. This is the criterion of any learning process. Jones¹ emphasized this point by saying: "Meaningful connections are much more important for long-lasting retention than they are in initial study."

In practice, the student should study to understand the material covered, as well as getting the full meaning out of memory work. Just trying to memorize the words will be very difficult; however, if there is a connection observed, then learning is facilitated to a much greater extent. The obvious implication for the student is expressed in the rule: "Make the material meaningful." It will be much easier to learn and to remember. Learning the text of the book as just so many meaningless statements is not the desired end. The student may eventually be able to recite many phrases in parrot-like fashion, but it will never become a part of his mental equipment and will soon be lost.

Brenn and Larsen² suggest that there are certain principles of memory which lead to more efficient remembering. These principles are quoted as follows:

1. Jones, op. cit., p. 48.

2. Brenn and Larsen, op. cit., pp. 16-17.

- "4. Be Sure You Have Accurate Understanding of the Material You Wish to Remember.
5. Learn with the Intention of Remembering.
6. Use a Logical Form of Organization.
7. Select or Create Key Words to Represent the Facts to be Remembered.
8. Try to See Mental Pictures of Whatever You Read.
9. Memorize by Using the Method Most Appropriate for the Materials to be Memorized.
10. Use Short Practice Periods.
11. Trust Your Memory.
12. Recite to Yourself Whatever You Have Learned."

The presentation of these various systems or aids in memory work are for the individual student to select that which best fits his personal needs. It is impossible to say that one system will work for all individuals; therefore, consideration and allowance must be made for individual differences.

The ability to concentrate will be considered under this section since it involves a related memory process. Ability to concentrate has been variously defined as the ability to bring all of one's powers, faculties, or activities to bear upon one course of action or thought on one subject. This is not hereditary, but rather a learning process in itself and may be improved once the student desires to form proper habits in this direction. Wynn and Larsen¹ have made a careful study along this line and recommend the control of a wandering mind as follows: 1. To eliminate distraction by little things which can easily be reduced or discarded, such as a phone call to the lady friend, or worry about another personal matter, then it is recommended that it may be best for the student to perform these duties immediately if that is possible. But if in the midst of study, make a note of the idea, task,

1. Ibid., pp. 19-20.

or problem on a scratch pad so that it may be taken up later. By doing this, the student will be able to put it out of his mind until the study period is completed; 2. It is possible to set your goals of accomplishment either too high or too low, thus resulting in loss of confidence as to personal abilities. The student should set his goal at a level which can be accomplished and then upon attaining this level, set a new goal to work toward. Don't try to accomplish or take on an impossible task or one which cannot be completed. To avoid this, the student should plan beforehand and attempt only that which is possible. It should be pointed out that the way goals are managed depends upon the intellectual tact and sensitiveness of the individual; 3. The student may have financial difficulties, unsuccessful love affairs, feelings of inadequacy, etc. If this is the case, he should attack and determine a course of action. To do this it will be necessary to know what changes are needed and which of these changes are possible. If the problem is attack, it will eliminate "thinking in a vicious circle" and cause a face-to-face realization of facts. It may be best to talk with someone else regarding personal conflicts. Most important, however, is to reach a decision concerning the problem irrespective of the fact that immediate action may not be possible, and then make it final.

The function of this mental process is to transform a situation in which there is experienced obscurity, doubt, conflict, disturbance of some part, into a situation that is clear, coherent, settled, and harmonious. This facilitates learning.

Frequent Review

It is a well known fact that frequent review will serve to bring lost material back to an efficient level of memory. Guilford¹ has shown that there is a typical loss of retention as time passes. His experiments had to do with the results on forgetting of different kinds of material, and indicates that the greatest loss occurs immediately after learning. From this fact, it is apparent that immediate review is highly desirable. The term "immediate review", refers to review immediately after it is felt that the material has been learned. Smith and Littlefield² say: "Review again and again, as the practical need arises for using the subject matter you have mastered."

The problem of how the review effort should be spaced in time is not easy to answer, since it will depend on many variables. In spite of the practical significance of this point, no one has investigated it adequately. The student should consider his basic and individual need in this respect, keeping in mind the fact that the longer knowledge has been maintained, the less it will decline in a given amount of time. This would tend to indicate that as the material is reviewed, the time required to attain the mastery level is reduced with each review.

Many things learned need not be remembered, thus the review should emphasize those points of greatest importance or of greatest difficulty. The student should keep a list of the difficult points in his assign-

1. J.F. Guilford, General Psychology, p. 409. New York: Van Nostrand, 1959.

2. Smith and Littlefield, op. cit., p. 29.

nents as he reads through them. To support this, it should be apparent that points which are difficult at first, are likely to be underlearned and consequently first to be forgotten. By keeping a list of the difficult points, the student will be able to use it for subsequent review and study.

In certain courses of study, the student will find that the learning process is a step-by-step process, i.e. it must be built up logically so that one principle depends upon another. In this type of situation, review is inevitable, since the lower principles are covered by using them with the higher level conditions.

Proper methods of reviewing as presented by Crawford¹ in his Study Methods are listed in part as follows:

- "1. Review in a way different from the one by which you first studied, in order to avoid mere mechanical repetition and consequent loss of attention. A review should be as nearly as possible a new view of a subject, not just a drill.
2. In reviewing your notes, use underlining, red ink, or some other method of emphasizing the most important points.
3. Discuss the subject with fellow students. Talk it over; argue controversial points. Ask each other questions.
4. Try to frame questions which you would ask if you were the teacher, and then be sure you can answer them.
5. Give special attention to phases of the subject in which you know you are weak.
6. Give the subject a final hurried review just before the examination period."

If the student wishes to remember what he learns, he should use it frequently, learn with intent to remember, cover the troublesome parts

1. C.C. Crawford, The Technique of Study, p. 133. Boston: Houghton-Mifflin Co., 1922.

especially well, and review as frequently as possible. Serious consistent review will inevitably reward the student in dividends of increased knowledge and a more retentive memory.

Preparing For Examinations:

Examinations have been under considerable criticism for nearly half a century, and have been used for approximately 4000 years. However, they are presently more solidly entrenched than ever. They are not only used in institutions of formal learning, but also in many other phases of human endeavor, which includes the military service. The whole field of learning utilizes this method to determine relative progress of various students, but this is not limited to the field of study, as the human individual is constantly being tested. For example, a senior officer may give an order to a junior officer, and in so doing, may give several possible solutions or alternatives for the execution of the order. This, in effect, would constitute a "multiple-choice" type of question. The individual is living in a highly competitive society whether it be in the military service or in civilian life, and he is always competing in social situations, in athletics, for promotion of one kind or another.

The question, "Why are examinations necessary?" will naturally arise at this point. Some of the values of examinations will be discussed below.

To Measure Performance. The purpose of most examinations is to check up more accurately and finally on the material covered. This is an indicator to both student and instructor. The importance of this phase can be realized by the fact that the individual is rare who would

want to be operated on by a surgeon who had never shown his ability by passing the "State Board". The military service requires proof of the serviceman's ability; therefore, the examination is a mode of demonstrating ability to perform.

To Coordinate Study. Practically all individuals need a little push now and then, thus the examination will force review, and organize material in the mind -- a procedure the student should follow in any event, but one which might otherwise be neglected.

To Indicate Achievement. It is mentally satisfying to the good student to do well on an examination because the examination represents a degree of achievement. Actually the grade is valueless, but it expresses mastery of a subject matter or skill.

If examinations are properly used, they may be diagnostic of the student's strength and weaknesses in the field of study. McKown¹ presents an outline of the most important justifications for examinations as follows:

1. The Examination Reveals the Extent or the Development of the Individual's Knowledge, Power, Skill, or Ability.
2. The Examination Provides a Written Review of the Mastery of Material Covered.
3. The Examination Motivates and Stimulates Learning.
4. Reviewing for and Taking an Examination Adds to the Student's Knowledge and Skill.
5. The Examination Gives Practice in Discriminating Between More Essential and Less Essential Facts and Principles.
6. The Examination Gives Practice in Thinking under Stress.
7. The Examination Helps to Indicate What is Expected of the Student.
8. The Examination Provides the Instructor with Another "Clue" on the Student's Work.
9. The Examination Provides Information for Administrative Uses."

1. Harry C. McKown, How to Pass a Written Examination, pp. 6-11. New York: The Raw-Mill Book Company, Inc., 1943.

To support the value and importance of an examination, the student may recall from personal experience or verify by asking a college graduate what is remembered of a course previously taken. The reply will indicate that very little is remembered of the content, but rather, the recall will be good for a certain question in a final examination. In view of this, the scholar should welcome the examination rather than condemn it as distasteful.

Taking the Examination:

The most important personal problem for students is how to pass an examination. To be realistic, the student will admit that the immediate objective is to pass examinations successfully. It is believed that the following rules will aid this end result.

Preparation: The instructor should announce the scope and limits of the test; however, should this be omitted, the student has a right to ask these questions prior to the test. Without this knowledge, the student would not know the area to cover for the examination. It would be like entering the boxing ring without knowledge of who the opponent was to be.

Instructor Analysis: A study of the instructor is sometimes just as important as the subject matter to be covered. The instructor may desire personal ideas given back unchanged; however, should this be required, the student will realize that this procedure is not indicative of a good instructor. In this event, future courses under this type of teacher should be avoided. The knowledge of what is presented in the test in relation to that given by the instructor and textbook is important, but the student should not be required to agree with everything

presented. If there is disagreement, the student should be prepared to present factual arguments in support of his contentions. The majority of instructors will be pleased to know that a student is capable of being at variance and can document his position with relevant facts.

Preliminary Survey: The student will need to know several factors before starting to write. The instructor will usually give information regarding the examination which the student should check; such as the number of pages in the examination, the number of questions, time permitted for each part, and time allowed for completion of the entire test. If the student does not understand the questions, it is proper to ask for an explanation. It is important to get an over-all view of the examination for the most efficient results.

The time element is an important consideration, since the student should allow sufficient time to complete the examination and then re-check the answers before turning in the test. A mental outline of your answer to each question will save time and avoid unnecessary errors.

Procedure During Examination: It is important that the student come to the examination well prepared and confident, but it is even more important to be well organized during the test. A good method is to proceed in the same manner as when preparing for the examination as habits are more easily followed when under mental stress.

The examination is very similar to the study period, in that there is a "warm-up" period in which little is accomplished. To overcome this, the student may find that by reading over the entire examination the emotional tension will be somewhat relieved. The next step is to

start with the first question and by this time, the strain will have been greatly alleviated, permitting the student to continue without difficulty.

The following rules of "work habits" should be carefully considered while taking an examination:¹

1. Begin Your Examination Immediately.
2. Work Vigorously.
3. Don't Hurry through an Examination.
4. Rest Occasionally.
5. Ignore all Distractions.
6. Don't be Sidetracked by Numerous Questions.
7. Reread All Your Answers at Least Twice."

It is realized that due to the nature of certain military type tests, there is little opportunity to see the exact errors made on the examination; however, the test result will be known to the examinee. This result may or may not give the necessary mental satisfaction, but it should give an over-all indicator of the total results. Whenever possible, it remains the student's right to see the results of a test and to examine each answer in order to better fix the material in his mind. The reason for such procedure is readily apparent, since this will give meaning to the experience and will progressively increase the student's power to direct his study methods.

The intelligent procedure for taking an examination involves three reference points, these include: (1) emotional, physical, and mental preparation for the test; (2) the actual process of taking the test; and (3) capitalization on the results of the test after it has been scored. The mental preparation is accomplished by the practice of proper methods of study and review, memorizing, and reasoning, as well as learning about

1. McKeown, op. cit., pp. 60-71.

and planning to meet the specific requirements of the instructor -- all of which will aid the outcome of success. Furthermore, this preparation will contribute greatly to the student's actual knowledge of the material in question.

Types of Examinations:

At this point it is advisable to give the student a relative picture of the various types of tests. Educators have given close attention to the problems involved in grading students. They have found that the old fashioned essay examinations by their very nature can cover but a few points, although these few points are covered thoroughly. The fact remains that there is wide disagreement among different instructors as to the answer which should be given for a question, thus two examinations of the essay type will not correlate well with each other. McDown¹ has listed several advantages and more disadvantages to this type of examination, and concluded that the main objections were not due to the inherent faults in the essay test per se, but rather to the way in which it is organized and used.

Jones² gave an example of this type as follows:

Discussion Questions. (The student is supposed to develop his own organization of material to cover the question adequately.)

- (a) Tell what you know about populism.
- (b) Discuss the growth of tenancy in the United States.³

It can be readily observed that this type of essay examination calls for understanding and meaningful associations, rather than for any

1. McDown, op. cit., pp. 80-81.

2. Jones, op. cit., p. 112.

specific information in memory. This type may require a short answer or a long rambling answer, for which books have been written covering the same point. Another favored question of this type may ask the student to "Prove or disprove the validity of this statement. . ."

This should be sufficient to show the difficulty involved in this type of examination, if applied to the service situation. The time element alone would disqualify such a procedure.

During the last ten years the use of the objective type of examination has developed with such startling rapidity that now the service has adopted almost universally this method of testing. The objective examination is superior to the essay type because it gives a more complete sampling of the materials in the course of study. There may be some difficulty in the preparing of the scoring key, but the involvement is surely much less than that found in the essay type. The objective type is apt to be more factual than the essay type; therefore, it is more difficult if not impossible to bluff an answer.

The objective system has two main forms, (1) the recall type which requires the examinee to supply the answers; and (2) the recognition type which supplies the correct answer among several incorrect answers. There are various types of questions which may be used in the objective examination, but for our purpose, the following will be discussed:¹ (1) the Recall Question -- the student is asked to write the correct answers to specific questions, or to fill in the blanks in order to complete sentences; (2) True-False -- the student is asked to mark the question in some manner to indicate whether or not the statement is

1. Herbert E. Hawkes, E.F. Lindquist, C.W. Mann, The Construction and Use of Achievement Examinations, pp. 124-154. Cambridge, Massachusetts: The Riverside Press, 1936.

correct or wrong, true or false, etc.; (3) Matching -- the student is asked to write on the left of each item in the right column the number corresponding to the correct associations in the left column; and (4) the Multiple-Choice -- underscore the correct phrase or place the number of the correct phrase in the space provided on the left, etc.

The various types of examination methods listed above are illustrated by Hawkes, Lindquist and Mann¹ as follows:

Recall Questions; Directions: After each of the following inventions write the name of the inventor.

1. Cotton gin _____.
2. Sewing Machine _____.
3. Telegraph _____ etc.

True-False; Directions: Encircle the "T" before all true statements and the "F" before all false statements. The first item has been marked correctly.

- | | |
|--|---|
| <p>① T F</p> <p> T F</p> | <p>1. Like poles of magnets repel one another.</p> <p>2. The zinc can of the dry cell is the negative electrode. etc.</p> |
|--|---|

Matching; Directions: Write in the parentheses before each statement the number of the location to which it applies.

- | | |
|--|--|
| <p>() 1. The eastern end of this island is located directly south from the most eastern part of the United States.</p> <p>() 2. Would be crossed in a direct airplane flight from Key West to the Panama Canal.</p> <p>() 3. The most southern of the places listed. etc.</p> | <p>1. Bermuda</p> <p>2. Cuba</p> <p>3. Haiti</p> <p>4. Jamaica</p> <p>5. Nicaragua</p> |
|--|--|

Multiple-Choice; Directions: Underscore the correct name or phrase.

1. Who invented the telephone? (1) Morse, (2) Edison, (3) Henry, (4) Bell, (5) Kelvin.
2. What is the purpose of an electric motor in an electric refrigerator? (1) It compresses a gas and cools it with air currents until the gas is liquefied. (2) It cools the air compartment by blowing air through it. (3) It makes a liquid evaporate by blowing air over it. (4) It produces ice by electrolysis of water."

If the various combinations of the above types were considered here, it would be an endless task, thus the important point for the student to remember is to find out prior to examination time just what type to expect. When in doubt as to what type of examination will be given, the student should prepare for the essay type. Meyer¹ has shown that students who studied for the essay type of examination succeeded equally well on the two types. Conversely, this would indicate that to prepare for an objective type and then take an essay examination, the reverse effect would be involved. To study for an essay examination and then take an objective, the material learned being more meaningful, the result on the latter type will be much more favorable.

Mental and Physical Hygiene

The psychosomatic (mind-body) aspects of the nervous system are but partially understood. There are certain dysfunctions which are understood and certain functional disorders which are known, but only in certain instances is the true interrelationship between the two understood. One thing which is known in this relation has to do with the fact that mental efficiency is related to a degree, to physical efficiency, which is the same as saying that the mind and the body are so closely related that whatever affects one inevitably affects the other. In view of this relationship, it would appear that physical fitness should be an essential element of the student's study habits program.

1. G. Meyer, "An Experimental Study of the Old and New Types of Examination. I. The Effect of the Examination Set on Memory." Journal of Educational Psychology, pp. 641-661, Vol. 25, 1934.

The student's contemporary life undoubtedly imposes a strain on all healthy activity, thus a certain amount of physical exercise is necessary for a well-balanced program. To have a sharp mind, it is necessary to have a "sharp" body. By "sharp" reference is made to forthright energy, terse or racy vigor, the ability to think and act clearly, and with gusto. Exercise will develop the ability to coordinate these various functions. Just as a musical instrument requires tuning to produce a state, or capacity, of giving tones of proper pitch, the psychonomic functions require harmony to produce an effective study process and to give the mind the necessary vigor to operate under the stress created in an examination session. The student should recognize that a ten minute period of physical exercise, such as swimming, sitting-up exercises, etc., would at least be a step in the right direction. The benefits derived from exercise will have a multiple therapeutic effect in that the unpleasantness of restlessness, poor blood circulation, tension of nerves, and muscles, etc., will be greatly relieved, or disappear entirely. When a student feels dull and listless around mid-afternoon, there is a good chance that there is a need for more exercise. Exercise at this point often enables the student to return to a more effective study period. A little exercise each day is much better than an excess on weekends or vacations. It is often the case that when students are having trouble with their studies, it means they are avoiding the right amount of exercise and a healthy outlet of activity which results in undue worry and tensions over every day assignments.

Byrd¹ outlines the essential conditions for mental health of the

1. Statement by O.E. Byrd, Ed.D., M.D., Department of Hygiene, School of Education, University of Stanford, California, Lecture, Autumn, 1948.

normal person, which should be recognized by the good student as an excellent guide in the solution of various scholarly problems associated with mental and physical health. These conditions are as follows: 1. The student should have a task or goal; 2. He should have a plan for doing that task or reaching that goal; and 3. An opportunity or freedom to work on the plan. He also presented the conditions under which these essentials are most likely to be achieved as follows:

1. Attention to the present situation. Live one day at a time. The situation at hand is always related to the past and the future.
2. Orderly association of activities, even the most ordinary.
3. Mental work systematically carried on.
4. Alternation of work and rest.
5. Normal reactions to feeling: emotional stimulation and response is necessary to mental health.
6. An active attitude in the face of difficulty. Occasions of worry, and rage should represent opportunity for important training.
7. Control, not by repression, but by indirect substitution. We control one action by doing something else. Every interest is potentially a means of self-control. Develop your wholesome interests.
8. Confidence that results from an ordinary degree of success in activities. Small successes usually precede major successes.
9. Normal social relations. To act with others as a leader or follower; to serve, cooperate and be congenial in a group.
10. Adjustment to environment sums up all conditions of mental health and effective personality.
11. Normal sense of dependence: basis of faith.
12. Facing reality: an attitude of trying to find reality. The learning, or scientific attitude.
13. The scientific attitude is the highest development of normal mind. It means not merely use of the scientific method, first hand observation, study under controlled conditions, and verification, but it means a general attitude toward life and the world.
14. Maintenance of GOOD PHYSICAL HEALTH . . . This involves good nutrition, rest, protection for communicable disease, and so on."

The foregoing recommendations not only give the student a good foundation for mental efficiency, but may well apply to the life situation for any individual who wishes a healthy philosophy by which to live. A balance of mental health may be achieved through the personal adaptation and practice of these principles. The student who is able to secure a balanced satisfaction of his motives by carefully planned courses of action will achieve adjustment and effective living, which is good mental and physical health.

Efficiency Check

At this point, the student should have progressed sufficiently to recheck his study habits. To measure this success in the application of study methods, the student should refer back to page five (5) and re-examine himself. A reduction in the number of errors should be noted, thus indicating the gradual betterment achieved, and permit the removal of certain defective habits from the list of corrections to be made in study habits. Frequent rechecking in this manner will further aid the student in the elimination of those undesirable and inefficient habits of study.

CHAPTER IV

SUMMARY AND CONCLUSIONS

Summary

Good study habits can be acquired by any student who selects the methods best suited to his personality and applies these methods to his personal needs. Good management of study efforts involves the assumption of an active attitude toward work. In other words, the student should work while he works; play while he plays; and keep his goal in mind.

The inability to read is frequently the cause of poor learning in many students. This may be due to poor illumination — which can be corrected, or it may be due to poor eyesight which a physician can correct or improve. If the student's eye movements are faulty, or if he vocalizes too much while reading, this may be detrimental to his reading speed.

Many students have failed because they did not make their lessons meaningful. Skimming the assignment will give an overview of the material to be studied. Bring in past experiences to aid in more permanent retention of the material learned. Use the dictionary to look up words which are not understood. Summarization of the text and lecture material in the student's own words will aid the ability to recall material later. Relation of present material with past experiences will make it easier to understand, learning will be faster, and more permanent. The student should not try to study material which is too difficult for him, nor should he skip charts, tables, graphs, etc.

The learning effort should be well spaced, as cramming is not the

most efficient method to learn for permanent retention of the material. By the use of frequent reviews, the student will be able to avoid the necessity for cramming, as well as keeping the learned material at an efficient working level.

The student will be able to increase his learning ability and efficiency by a survey of his own faults and by studying with the intent to remember. The application of what is learned in day-to-day use will enhance the memory of material covered. The student should not be discouraged by the amount of effort and patience required at the onset of the development of systematic methods of study; but soon, he will note that these habits will have become habitual and effective.

Conclusions

1. If the proper methods of study are adapted to the individual and if that student will practice those methods, the results will be related directly to the application, and be observed in successful achievements.
2. Learning occurs when some condition of the student's environment causes him to repeat certain responses leading to satisfaction from the educational process.
3. The best time for learning is in youth, but it is not impossible in old age even though the process may become more difficult with time.
4. It is apparent that pleasant experiences are remembered longer than unpleasant ones, and that both experiences are remembered better than those which are neither pleasant nor unpleasant.
5. Efficient study can be very satisfying to the individual's mental and physical health, in that it will give the student the necessary tools to master various situations in his environment.

6. Any student who learns to use these principles will improve his ability to learn, but whenever he fails to apply them, his memory will be no better than it was before consideration of the better habits of study.

7. Several studies have shown that thinking is associated with a variety of muscular activities; therefore, giving support to the psychosomatic theory of thinking, consequently facilitating learning by the interrelationships of the mind and body. That is to say, a healthy mind gives a healthy body, and vice versa.

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